AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK.

The customary autumn reception at the American Museum of Natural History, Seventy-seventh street, near Central Park, took place on the 27th instant, from two to five o'clock in the afternoon. The attendance was not so large as upon former occasions. Among the trustees present were noted Mr. Robert L. Stuart, President; Messrs. Robert Colgate, Benjamin H. Field, Adrian Iselin, Morris K. Jesup, James M. Constable, Joseph W. Drexel, Frederic W. Stevens, Hugh Auchincloss, Oliver Harriman, ex-Governor E. D. Morgan, John H. Sherwood, R. H. Keene, Professor Eggleston, Rev. Dr. Trimble, Arkansas; Professor Daniel S. Martin, Rutger's College, with many others.

The additions and improvements since the last reception, in May of the present year, may be briefly summarized as follows: In the lower hall the Binney and Bland collection of land and fresh water shells formed a new feature. It contained the typical specimens that are to be met with in the works of those authors, and was presented by twelve members. The whole was enclosed in a desk case, placed between cases R and K. Besides this the skeletons of three Australians were there to challenge the attention of scientists. These interesting specimens were the gift of Mr. Morris K. Jesup, and may be inspected in case A. In the main hall, the Maximilian collection of birds, attracted the attention of visitors; they have been re-mounted on the new stands described in an article in "SCIENCE," October 7 last, under the title of "Bird Furniture, by Dr. Holder, the Assistant Superintendent. We direct the attention of those making collections of Natural History specimens, to these stands; they are inexpensive, and possess many advantages. The North American collection was increased by six hundred specimens.

The gallery stairway showed a detailed ethnological map of Africa, drawn on a large scale by Professor Bickmore. The additions to the Ethnological Collection from the South Seas consist of a war canoe (case No. 1), New Zealand weapons and carvings (case No. 3) and stone axes from New Guinea (case No. 4). The set of ornaments and carvings from British Columbia, presented by Mr. H. R. Bishop (case M), proved to be interesting, as many items were included which appeared unfamiliar to most people present. The Geological Hall received seven geological maps of Eastern North America, some Encrinites and other fossils from various formations. Cases A, B, C, D and E were re-arranged and labelled. In the desk cases specimens were placed which served to illustrate Dana's "Manual of Geology." The rearrangement and labelling of the portions alluded to are a considerable improvement.

Altogether the several collections and their belongings presented the appearance of being well kept and arranged accrding to the best scientific principles. The trustees say that the elevated railroad has brought a greatly increased number of visitors to the Museum, and they hope to make it still more attractive as a place of instructive amusement. It has been suggested that such advanced classes of the higher schools and colleges as are making a regular study of natural history could find in this collection an excellent opportunity for advancing themselves in their chosen branch of education. If professors or teachers would accompany their pupils periodically through the Museum, giving progressive lectures on the different subjects presented for consideration, it is believed that the results would, under all aspects, be most beneficial.

ASTRONOMICAL NOTES.

Dr. W. L. Elkin has made a re-discussion of the various series of observations of α Centauri for the determination of the value of its parallax. These include the observations of Henderson, Maclear, Moesta and E. J. Stone. Besides a recomputation of the absolute parallax, Dr. Elkin has selected the observations which were made on nights when both α and β Centauri were observed, and from these determined their relative parallax. The discussion includes a new determination of the orbit of α considered as a double star, as well as a discussion of the relative proper motions of α and β. From a careful examination of each series he concludes that Maclaer's is the only one worthy of confidence. He finds that, although the probable error of Moesta's series is small, the annual variation may be accounted for as the effect of changes in temperature. Maclear's observations give for the relative parallax of α and β: $0''.50 + 0''.08$.

Dr. Henry Draper has succeeded in photographing the bright part of the nebula in Orion in the vicinity of the trapezium. The photographs show the mottled appearance of this region distinctly. They were taken by the aid of a triple objective of eleven inches aperture made by Alvan Clark and Sons, and corrected especially for the photographic rays. The exposure was for fifty minutes. A detailed description of the negatives has not yet been published, but will be soon. O. S.

SWIFTS' COMET.

BY ED. E. BARNARD.

The large comet discovered by Prof. Lewis Swift on the night of Octer 10th in R. A. 21 h. 30 m. north declination 17° 30′, is now in excellent position for observation. On October 21st it followed the fourth magnitude—star κ *Pegasi* by somewhat less than 1°. At 8 h. Washington *m. t.*, I determined its position by the aid of a ring micrometer, R. A. 21 h. 42¼ m. Dec. + 25° 1′. The following night, October 22d, its position was at 10 h. 20 m. R. A. 21 h. 44 m. 3 sec. Dec. + 26° 2′. It is moving moderately fast in a north. easterly direction. It was observed again on the nights of October 23d and 24th. The comet is perfectly transparent. At each observation it passed over a number of small stars, 8 or 9 mag., these were seen through its very centre; they were slightly dimmed by the material of the comet.

It appears large and diffused with a slight condensation at the middle or the preceding side, with probably faint evidences of a diffused tail.

It can be seen with a very small telescope, being plainly visible on the 24th in my 1⅛ in. finder.

NASHVILLE, TENN., *October* 25.

BOTANY.

The first annual Report upon Useful and Noxious Plants, presented by Professor T. J. Burrill to the Illinois State Board of Agriculture, contains a paper suggesting the more general cultivation of the Catalpas (*Catalpa bignonioides.*) Professor Burrill states: "I write 'these trees' advisedly, believing that the two kinds now known as the common and the hardy, or the eastern or southern and the western, are really different species. The wonder is that botanists had not long ago detected this difference and that in our manuals of botany the two had not been given under specific names.

At Urbana, Ill., in 1880, the one came into flower the first week in June; the other was nearly three weeks later, being in full flower about June 24th. They differ in other respects quite as much as well recognized species of oak, ash and cotton-wood; much more than described species of willow. But *Catalpa bignonioides*, Walt., is the only name to be found in the ordinary books, devoted to the flora, in whole or part, of North America. In 1853 Dr. Warder, of Ohio, noticing the showy flowers of some trees at Dayton, Ohio, and supposing these to be a *variety* of the well known species with this peculiarity, named the variety *speciosa*. It now appears that this large flowered kind is the common indigenous form found in the States of Indiana, Illinois, Kentucky, Tennessee, Wisconsin, Arkansas, etc., and botanists will doubtless henceforth write *Catalpa speciosa*, Warder, as a distinct species. Contrasted with *Catalpa bignonioides* the flowers are earlier and larger; the seed pods are larger; the bark is darker, and does not scale off, giving quite a different aspect to the trunk of a mature specimen; the growth is more erect, causing a better bole and finer head, and the tree is not so liable to be killed by the severities of winter. Added to all this the trees are so characteristically different that anyone can readily distinguish them. In *C. bignonioides* they are narrow and the fringe of the wing is close and pointed; in *C. speciosa* the larger seed has a wider wing, terminated at each end with a broad fringe of softer hairs. Unfortunately most of the cultivated Catalpa trees in Illinois have been of the tender species, and, although the wonderful durability

of the wood has long been known, its liability to 'winter-kill' and its irregular, crooked growth has prevented its being planted for timber."

Much space is also given in this report to the subject of Fungi on living plants, which are more disastrous to crops than the ravages of insects. These forms include rusts, smuts, mildews, rots, blights, etc., the rust alone on wheat taking from the former more than all the tax collectors, and creating such losses as to frighten cul tivators from their business. Professor Burrill regrets that the study of Fungi receives so little attention in this country, and says the number of American botanists who have published original accounts of the development of any fungous species may be counted on the fingers of one hand. As much practical importance and scientific interest is attached to such a study, we trust many botanists may in the future give more of their time to original investigations in this direction.

MICROSCOPY.

The American Monthly Microscopical Journal for October, describes a warm stage for the Microscope, by Professor E. H. Bartley. It has the advantage of being so simple that it can be constructed at home with a few inexpensive materials. We once saw this apparatus shown by the inventor at the New York Microscopical Society, and considered it a success.

Simple forms of mechanical figures are described by Mr. J. Sullivant.

Professor C. C. Merriman's interesting paper on the microscopical collections made by him in Florida, occupies nine pages of this number.

We regret that Mr. Frederick Habirshaw's "*Catalogue of the Diatomaceæ*" will be delayed in the publication for the want of sufficient promise of patronage. This may arise from many not understanding the nature of the work or its construction. If the editor of the *American Monthly Microscopical Journal*, who has the matter in hand, would print a sample page in his journal, it might remove such a difficulty. We believe we have heard the author himself state that the book in question would be useless to those not having a full library of works on the subject, so as to avail themselves of the ample references he makes to the published literature of the subject.

The demand for such a work must be very limited; on the other hand a condensation of all this literature would be very welcome. A comprehensive work on the diatomaceæ, well illustrated, is much wanted and if issued in monthly parts, at a moderate price, would command a fair sale both at home and abroad.

Mr. Habirshaw appears to have the material for such a work in his possession, and he has given ample proof of his literary ability to undertake the task.

We think ten dollars would be better invested in a work such as we suggest, than five dollars in an index to a scattered literature, which the purchaser can never hope to possess.

PHYSICAL NOTES.

Observation Made on a Group of Rays in the Solar Spectrum.—L. Thollon figures and describes a group of four rays, situate in the Orange. Two of these rays belong to Iron, their wave-lengths being respectively 5976·1 and 5974·6. The other two are Telluric, and their wave-lengths are 5976·35 and 5974·36.

Cause of the Variations of the Fixed Points of Thermometers.—J. M. Crafts cites some experiments which reduce to nothing, or almost so, the part played by pressure in the permanent elevation of the zero-point. The glass blown at the lamp and exposed for a long time to the action of heat diminishes in volume by means of some internal change, and it is not demonstrated that pressure plays any part whatever in the phenomenon. The particles of glass which have been removed asunder whilst it was being blown do not return immediately to their normal position at a lower temperature; we observe disturbances for some time, and finally the glass may remain for a long time in a state of tension at the ordinary temperature. The action of heat at a given temperature (*e.g.*, 355°), giving a greater mobility to the particles, favors their return to the normal position, and gives scope to a contraction. But the glass, when cooling from this latter temperature retains a part of the displacement peculiar to 355°. On heating again to a lower temperature (*e.g.*, 300°) a new decrease of volume is produced, so that a very slow cooling, which produces successively all these effects upon the particles of glass, must ensure the greatest stability.

Rapid Alcoholic Fermentation.—In order to effect rapid fermentation for the destruction of the sugar contained in wines, J. Bouissngault suggests that the sample be mixed with water and yeast, and placed in connection with an exhausting syringe, reduces the pressure, and thus which eliminates the alcohol as fast as formed. The fermentation, not being checked by its presence, goes on till all the sugar is decomposed.

Inconveniences, from a Physiological Point of View, of the Substitution of Amylic Alcohol for Ether in Stas's Process for the Detection of Morphine.—As amylic alcohol, even in very small doses, produces in animals systoms closely resembling narcotism, and as it is not readily removed from the cadaveric extract, physiological experimentation in confirmation of the chemical reactions of morphine is rendered untrustworthy.—*Compes Rendus.*

Influence of the Galvanic Current on Bacteria F. Cohn and B. Mendelsohn carried out their experiments to verify the assertion of Schiel, that the galvanic current prevented the development of Bacteria. The results were that a feeble current from one pair of elements had no perceptible effect; a current from two elements rendered the solution inactive at the positive pole; a current from five, continued for twenty-four hours, completely sterilized the whole solution, and deprived it of its power to infect another solution. The solution at the positive pole was first affected; with the stronger current the liquid became acid at the positive and alkaline at the negative pole. The induction current had no perceptible effect on the Bacteria.—*Jour. Chem. Soc.*

Effect of Age on the Quality of Iron.—Previous tests have shown that iron, subject to even fifty years of use and exposure, is not perceptibly changed in quality, either in strength or elasticity. Professor Thurston recently tested the remains of the Fairmount Suspension Bridge, which had been in use forty years, and found the iron in no man ner deteriorated.

Phosphorescent Lighting.—Dr. Phipson takes Sulphide of Barium, or some other substance which is rendered phosphorescent by the solar rays, and encloses it in a Geissler tube, through which he passes a constant electric current of a feeble but regular intensity. He claims to obtain in this manner a uniform and agreeable light, at a lower cost than that of gas.

BOOKS RECEIVED.

Sugar Analysis—A Description of the Methods used in Estimating the Constituents. By M. Benjamin, Ph. B. New York. 1880.

To those who desire a concise and practical guide to this subject, Dr. Benjamin's essay, published in pamphlet form with twenty illustrations, will perhaps be more serviceable than a more elaborate work. The essential facts for a general comprehension of the subject have been judiciously arranged.